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ABSTRACT

Speech samples were taken every two weeks for a period of 40 weeks from a five-year-old Japanese girl learning English as a second language through her environment. The presence or absence of some grammatical morphemes in linguistic or nonlinguistic obligatory context was scored; using Brown's (1973) criterion for morpheme acquisition, a rank order of these morphemes was determined. The order obtained was different from those of native English-speaking children. Possible determinants for this rank order are hypothesized in terms of (1) presence/nonpresence of that semantic notion expressed by those individual English morphemes in Japanese, (2) a principle of simplicity, and (3) phonological interference. (Author)

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A Preliminary Report on the Development of Grammatical Morphemes in a Japanese Girl Learning English as a Second Language

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ABSTRACT

Speech samples were taken every two weeks for a period of 40 weeks from a five-year old Japanese girl learning English as a second language through her environment. The presence or absence of some grammatical morphemes in linguistic or nonlinguistic obligatory context was scored; using Brown's (1973) criterion for morpheme acquisition, a rank order of these morphemes was determined. The order obtained was different from those of native English-speaking children. Possible determinants for this rank order are hypothesized in terms of 1) presence/nonpresence of that semantic notion expressed by those individual English morphemes in Japanese, 2) a principle of simplicity, and 3) phonological interference.

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INTRODUCTION

A five-year old girl is extracted from her native environment in Japan and is set to re-root in the neighborhoods of Cambridge, Massachussetts. To look at what systems of roots were left in the soils of Japan would be an interesting topic of study. But even more interesting, and perhaps more relevant, is the emergence and growth of new roots in the new environment. To what extent are the strong roots which survived the cultural transplant going to influence the development of the new roots? Among these new roots, we find the interestingly intricate growth of the language of the new environment --- a second language. To focus even further, in this paper, we shall look at the acquisition of grammatical morphemes. There are three principal reasons why this particular aspect of language was chosen for study. (1) A methodology for scoring them in terms of percentage supplied in obligatory context as well as a strict definition of full morpheme control has already been established by Brown (1973) and his associates; (2) longitudinal (Brown, 1973) as well as crosssectional (deVilliers and deVilliers, 1973) data has shown a rather remarkable stability in the order of acquisition of these morphemes in first language children, and this might provide a level of comparison between first language (L1) and second language (L2) learning which MLU (mean length of utterance) does not; and (3) the process is laborious but easily replicable by other researchers of second language acquisition. There are, of course, countless other areas to be studied in the future, such as the development of the powerful tool of sentence embedding, and this is only a beginning.

THE SUBJECT AND THE PROJECT

The subject studied here will be called Uguisu, "nightingale" in Japanese. She was 4:11 when she came to the United States in October of 1972 with no

previous exposure to English. Her parents come from a highly intellectual background and are visiting Harvard for two years. Uguisu enrolled in a public kindergarten in November of that year, and that was when her exposure to English began. From then until June of the following year, she spent two hours a day in kindergarten. She has many friends, mostly from working class families, and she actively plays with them in the afternoons as well as weekends. At home, she speaks Japanese with her parents, although they have recently told me that as of late, her amount of English spoken at home has increased.

This project studying the development of her English began in February of 1973, but it yielded so little data as to be useless. Every week, I visited Uguisu's home in North Cambridge and recorded spontaneous speech of her playing with her friends for lengths varying from one to one and a half hours. The very first visit, Uguisu yielded some 11 utterances. The next week, she produced 3. There is definitely a problem in longitudinal studies of L2 acquisition in that the person interacting with the subject cannot be the mother. Whatever, the following week, pictures were used as stimuli and 27 utterances were extracted, literally speaking. From the end of March until the beginning of April, she was not observed. Then on April 12, her English blossomed. She made 114 multi-word utterances in the span of an hour.

According to her parents, Uguisu while on a trip was accompanied with an adult with whom she got along well. Very possibly, it was a matter of confidence rather than competence that she started talking.

From that wonderful spring day in April on, Uguisu indeed was a nightingale turned loose, much to my delight. Speech samples were taken quite randomly, although sticking strictly to the rule that at least two hours of speech be collected every two weeks (save a few exceptions), and from October 1973 on, the sampling was reduced to 2 hours every other sample, and 1-1½ hours in the

rest. However, little damage has been done to sample size because her rate of output has increased.

Two important events have happened to Uguisu during the course of this project. First, summer vacation from kindergarten, and especially the "going-away-for-the-summer" syndrome of America, has reduced her amount of exposure to active speech with peers, especially between samples 10 and 11. Second, she enrolled in first grade of public school in North Cambridge, and whatever effects spelling and other forms of instruction may have had on her language is yet to be determined. To give an example, a recent utterance of hers was "They belong together" referring to two different kinds of goldfish, and one can take a reasonable guess where she might have learnt that from.

A final point to make as far as sampling procedures go is that as of sample 7, the interacter was changed from her peer to adults (frequently myself). This was done because an adult who is conscious of the goals of this project tends not to interrupt Uguisu in the middle of an utterance, which frequently occurred in the case of her peers, much to my irritation.

This section cannot be closed without a few anecdotes on Uguisu's metalinguistic awareness, which seems to be relatively strong, at least as far as asking for information goes:

Raggedy-Ann: Oh, can I stay for a little bit? I'll just watch. Please, please, please, Uguisu?

Uguisu: I think we can't. Uh, I think we (can).

RA: We can or can't?

U: Can't.

RA: Can't? Why not?

U: I mean, we can ...

RA: Can I stay?

U: Yeah.

RA: Yeah?

U: If we can't.

RA: Huh?

U: How do you call "yes"?

RA: What?

U: "Yes we can"?

RA: Yeah, "yes we can".

U: Yes we can. but...you, you have to tell your mother.

On another occasion, she said apologetically to an interacter who was not completely familiar to her: "Well, I call it 'like that' because I don't know how do you call this plant."

So such is the status of our little co-operative nightingale, let us now see what she has to say about grammatical morphemes.

METHOD

The morphemes investigated include those studied by Brown (1973) and his associates plus several others which proved frequent enough to yield continuous data. They are summarized in Table 1 along with examples of how they could be used.

There are several deviances from Brown's (1973) study worth noting. First, in both the case of the copula and the auxiliary for the present progressive, Brown made a distinction between contractible and uncontractible ones. However, in the case of Uguisu, she has supplied these morphemes to criterion (+90%) from the earliest samples, and so in this study, that distinction would be pointless. A second deviance is that Brown did not distinguish between the auxiliary for the present progressive and the going to (or gonna) form used to express the future; I found this distinction necessary since gonna did not

MORPHEME	FORMS	EXAMPLES
Present Progressive	-ing	My father is reading a books.
Copula	be, am, is, are	Kenji is bald.
Auxiliary (Prog.)	be, am, is, are	She's eating a money.
*Past Auxiliary	didn't, did	Margie didn't play; Did you?; I did.
Preposition in	in	Policeman is hiding in Kenji's shoes.
Preposition on	on	Don't sit on bed.
*Preposition to	to (directional)	He come back to school.
Possessive	's	My father's teacher.
Plural	-s	My hands is dirty.
Articles	a, the	She's in a house. ; Gimme the playdough.
Past Regular	-ed	The policeman disappeared.
Past Irregular	go-went; come-came	She came back.
3rd Person Reg.	-s	This froggie wants more milk.
3rd Person Irreg.	has, does	She has mother, right?
Gonna-aux	am, is, are	I'm gonna died today.

Table 1

Morphemes Scored and Examples of Usage

*Morphemes not scored by Brown (1973).

appear in Uguisu's protocols until sample 4, and she seemed to be using the two quite separately. And finally, Brown mentions that the past form of a verb is used also as a hypothetical, but that this form does not appear in the period which he investigated. Uguisu did use hypothticals in the context of if...then statements, and this would mark an obligatory context for the past, but such instances were excluded from the count in order to maintain some deal of comparability between the studies.

The morphemes not investigated by Brown are asterisked in Table 1. They are: to used to express directionality (mostly with come and go), and the past auxiliary. The latter should not be confused with the past auxiliary for the progressive, as in "He was dying". Rather, it refers to didn't used in negation (I didn't do that) and did or didn't as it appears in questions (Did you steal my dice?).

Scoring was done according to the rules set by Brown, Cazden and deVilliers, and is reproduced in Appendix A. Morphemes were scored P for present in obligatory context, A for absent in obligatory context, OG for overgeneralization (ie. That's she's book for possessive), and X for incorrectly supplied (These are my left hands).[1]

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[1] This last category X is important especially in second language learning, I think, because we would expect more rote memorization as well as segmentation errors to occur. Unfortunately, the figures in this category are not in at the time of this writing, but to give an illustration of what could occur, I have looked at the pluralization of the demonstrative adjectives and pronouns this/that and these/those in all samples. 68% (n=153/226) were correctly supplied in obligatory contexts across all samples, but among all instances of these/those, only 75% (n=153/202) were correctly used in a plural context. In other words, these/those was used with singular referents in 49 instances. This method will be reported in detail in a forthcoming paper.

If there were any doubts about whether the morpheme was obligatory or not, it was omitted from the count. Finally, percentage supplied was calculated for those morphemes for which there were 5 or more obligatory contexts in a sample. Acquisition point is defined as the first of three consecutive two-week samples in which the morpheme is supplied in over 90% of obligatory contexts.

RESULTS AND DISCUSSION

The results of this partial scoring are listed in Table 2. But before going any further, one obvious but important point to notice is that, in Uguisu as well as in the L1 learners Adam, Eve and Sarah (Brown, 1973), the acquisition of these grammatical morphemes is not a sudden but a gradual one. Figure 1 charts out the development of some of the grammatical morphemes in Uguisu. It is quite striking, say, to take the case of the possessive 's, to see that from sample 2 when the morpheme is being supplied 60% until sample 17 when it starts being reliably supplied (+90%), it is a period of 7½ months. Furthermore, an obligatory morpheme is often supplied in one utterance, and in the next breath, the same utterance is repeated, but this time with that morpheme missing. Why such variability exists, even in an L2 learner, remains to be answered, but the appealing expianation of "limited processing span" necessarily loses some wind, since Uguisu is of an older age than an L1 learner.

Table 3 maps out the order of acquisition of these morphemes as defined by our criterion. This order is presented alongside those found by Brown (1973) and deVilliers and deVilliers' (1973) corss-sectional study. But before discussing individual morphemes, several general remarks about the rank ordering are in demand.

From sample 1 on, the -ing progressive, the copula and the auxiliary (be) to the progressive are abundantly present, although for none of these have the full percentages been calculated, and they were tied for first rank. From

SAMPLE

MORPHEME		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
-ing	%							95		100	91										
	n							19		16	23										
cop	%							91		95	95										
	n							78		125	132										
aux	%							93		92	95										
	n							14		13	22										
in	%		(00)	(00)	-	100	(75)	71	61	100	100	100	95	100	89	100	100	100	86	67	
	n		2	3	-	5	4	21	28	27	13	7	22	23	9	12	18	6	7	9	
to	%				45	73	50	82	75	100	100	100	100	95	100	-	85	-	100	71	
	n				11	26	14	22	12	29	20	6	23	19	5	-	20	-	6	7	
past	%	-	-	-	-	-	-	100	77	94	100	60	94	96	100	-	100				
aux	n	-	-	-	-	-	-	8	13	17	12	15	17	25	11	-	7				
on	%		-	(00)	-	(50)	-	100	80	57	-	-	(67)	100	-	-	100	-	(100)	(67)	
	n		-	3	-	4	-	7	5	7	-	-	3	6	-	-	5	-	3	3	
poss	%	-	60	35	(100)	63		75	-	67	-	-	73	85	88	-	59	96	-	100	
	n	-	15	20	4	24		16	-	9	-	-	15	33	8	-	56	27	-	6	
past	%										67		63			94		75			
ir.	n										88		30			17		20			
pl	%										57		64			62		58			
	n										44		74			29		24			
art	%										44		45			85		65			
	n										178		196			89		100			
3rd P	%			-	-	-	33	20	8	9	25	00	17	57	-	(100)	55	50	45	-	
Reg	n			-	-	-	6	5	12	11	16	6	6	7	-	3	11	6	22	-	
past	%										29		14			0		100*			
reg	n										7		21			6		5			
gonna	%	-	-	-	(67)	-	-	(100)	00	00	00	11	17	6		00		33		46	
aux	n	-	-	-	3	-	-	3	8	15	12	9	52	63		33		30		28	

(n=number of obligatory contexts; blanks indicate samples not yet scored; - indicates 1 or 0 oblig. context.)

Table 2

Results of Scoring of Grammatical Morphemes

*all routines

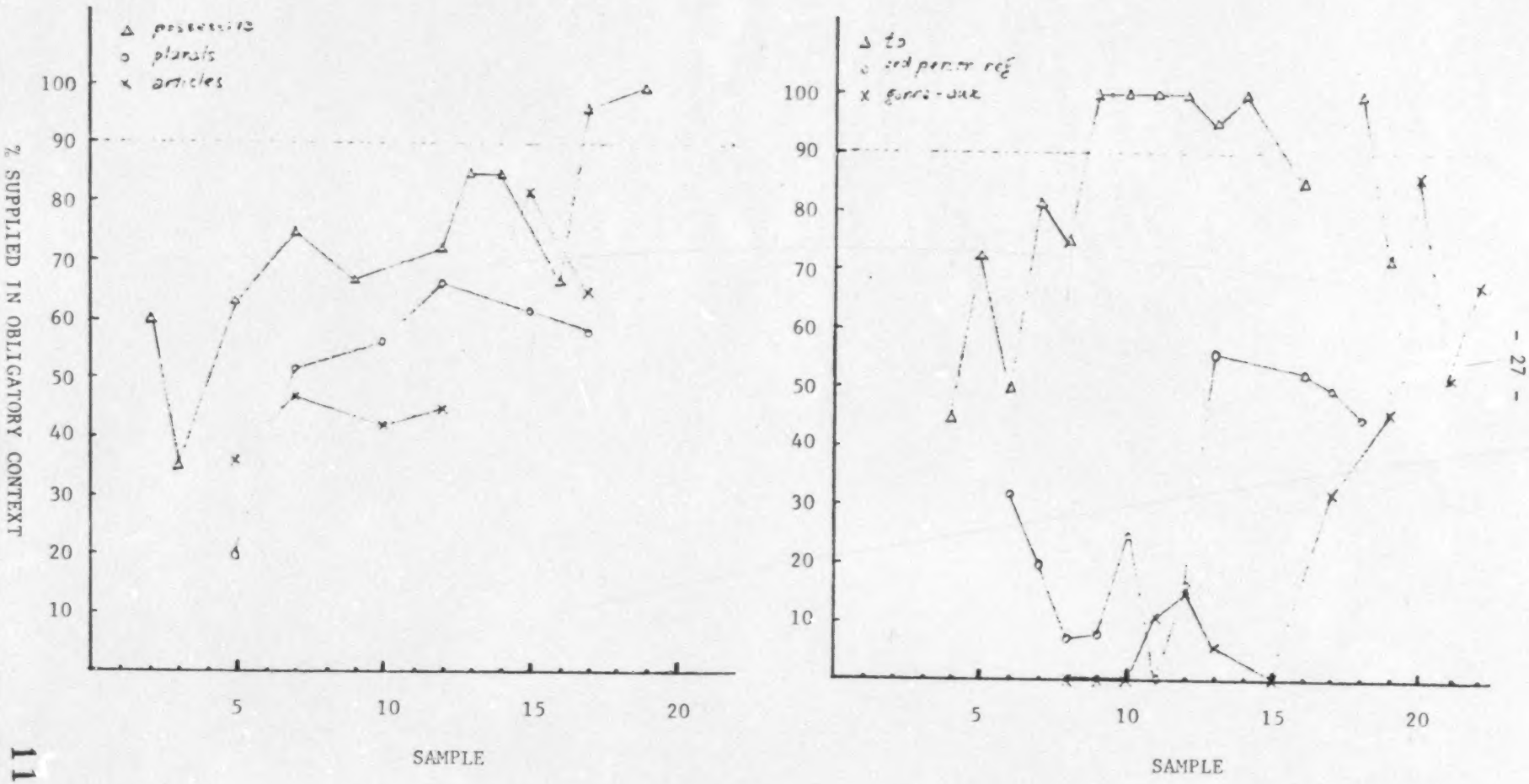

FIGURE 1. Acquisition curves for some representative grammatical morphemes.

Brown's Longitudinal, 1973[1]		deVilliers and deVilliers' Cross-Sect., 1973[2]				Hakuta's Longitudinal	
	Adam, Eve, Sarah		Method I		Method II		Uguisu
1	Pres. Prog.	2	Pres. Prog.	1	in	2	Pres. Prog.
2.5	on	2	Plural	2	on	2	Copula
2.5	in	2	on	3	Plural	2	Auxiliary
4	Plural	4	in	4	Pres. Prog.	4.5	in
5	Past Irr.	5	Past. Irr.	5	Past Irr.	4.5	to
6	Possessive	6	Articles	6	3rd P Irreg.	6	Aux Past (didn't)
7	Uncontr. Cop.	7	Possessive	7	Past Reg.	7	on
8	Articles	8.5	3rd P Irreg.	8	Articles	8	Possessive
9	Past Reg.	8.5	Contr. Cop.	9	Contr. Cop.	9	Past Irr.
10	3rd P Reg.	10.5	Past Reg.	10	Uncontr. Cop.	10	Plural
11	3rd P Irreg.	10.5	3rd P. Reg.	11	Possessive	11	Articles
12	Uncontr. Aux.	12	Uncontr. Cop.	12	3rd P Reg.	12	3rd P Reg.
13	Contr. Cop.	13	Contr. Aux.	13	Contr. Aux.	13	Past Reg.
14	Contr. Aux.	14	Uncontr. Aux.	14	Uncontr. Aux.	14	Gonna-aux

Table 3

Order of Acquisition Found in the Various Studies of Grammatical Morphemes Compared to the Present Study.

[1] This is an average rank order; the Spearman rank order coefficients between Adam and Sarah was +0.88, Adam and Eve +0.86, Sarah and Eve +0.87.

[2] In Method I, the morphemes were rank ordered by the lowest MLU at which the individual morpheme was supplied to criterion (n=5, +90%); in Method II, the percentages for each morpheme across all children were summed and then averaged. The Spearman rank order correlations between Brown's study and Method I was +0.84, Brown's study and Method II +0.78, and Method I and Method II +0.87.

rank order 9 down (past irregular), the morphemes have not reached criterion as of the writing of this paper. Thus, to come up with an order, I took samples 10, 12, 15 and 17 in which full scores for these morphemes were available and summed up the totals, thereby obtaining percentages for each morpheme. They were as follows:

Past irregular	.72	109/155
Plural	.61	104/171
Articles	.54	305/563
3rd P Regular	.35	11/31
Past Regular	.26	10/39
Gonna-aux	.15	19/127

They were added to the rank order list in that order. And finally, the 3rd Person irregular occurred quite infrequently across the samples, and, consequently, the acquisition point is hard to determine. Thus, it was left out of the rank ordering, although the available data is discussed in the section on third person inflections.

Now we are ready to review the nature and behavior of these individual morphemes.

The Copula and the Auxiliary

When Uguisu says "All the policeman is ghost" or "My hands is sticky", she is lacking number agreement between the subject noun phrase and the be verb. I have looked at all utterances in the data which have plural noun phrase subjects with either the copula or the auxiliary, and only .06 (n=4/62) had the proper allomorph of be. This is in marked contrast to the copula and auxiliary with the plural demonstrative pronoun these, in which case .97 (n=50/52) of the verb be agrees with their plural subject. In fact, the two exceptions were the same utterance "What's these?", which means that are always followed these (when used as a pronoun). Furthermore, in 25 other instances, Uguisu has used these to indicate singular referents, but in all instances supplied

are. The evidence becomes stronger when one looks at examples in which these was used as a demonstrative adjective:

M3404 These two girl is good girl.
M3409 These girl is sisters.
R1103 Why these are dirty?
R1104 Why these floor is dirty?
S4508 These card is the policeman.

This suggests strongly that (1) these are is, if not a segmentation error since she does use these in isolation, two words which have a high probability of occurrence together; and (2) number agreement is practically non-existent (6%) in all other cases. This result is rather surprising, since (1) Uguisu is supplying the copula and auxiliary up to criterion for acquisition (in scoring, cases where is was supplied when are was required were omitted from the count, since it is not exactly an error of "omitted in obligatory context"); and (2) one of the essential "ingredients" in Brown's (1973) description of the semantics of copulas and auxiliary was "number". It seems like our clever little five-year old subject has found a way to use these two grammatical morphemes without incorporating the notion of number. With this evidence in mind, we cannot say that she has "full control" of the copula and auxiliary, but we car say that she has "full control without number agreement."

The Past Tense: Regular, Irregular and Auxiliary

It is surprising to find the regular past towards the very bottom of the rank ordering list. The irregular past is not much further ahead. Then why is it the case that the past auxiliary has been supplied with significant frequency from the earliest samples? There are at least 3 possible explanations, not mutually exclusive: (1) most verbs used by Uguisu, and most children, are irregular, and by definition of the word is not rule-governed; (2) phonologically, the infrequent regular past forms end with a stop, and Japanese does not have

words ending with such; and (3) the past auxiliary form is highly regular. In fact, the two dips in performance in samples 8 and 11 are entirely due to the following utterances:

N3306 Do you saw this rabbit run away?
N4302 What do you do?
O2512 Do you saw three feet?
S0113 Do you bought this too?
S0114 Do you bought this too?
S0204 How do you put?
S0205 Do you put it?

They are all questions, and the other form (in which didn't is used for negation), looking at the infrequent occurrences in samples 4, 5 and 6, has always been supplied in obligatory contexts. This, I think, is an important piece of evidence for what we shall discuss later called the simplicity principle.

The Prepositions: in, on and to

For in and to, the acquisition points are clear. For on, not so clear, perhaps because we have less data.

There is one crucial point to be made concerning obligatory and non-obligatory ins. In English, location need not always be expressed by a grammatical morpheme. In thise cases, we can say that prepositions are optional. That is, we can either say "The book is there" or "The book is in there" while pointing to a book in an open drawer. Uguisu has used in 78 times in these optional cases (I have not yet tabulated non-occurrences of these optional cases), and in 43 cases, they were quite obviously not "contained" in any sense of the word, ie. wrong.[1] In the remaining 35 instances, many were of a doubtful category where the context did not make things too clear.

It is tempting to argue a case for some form of semantic interference from Japanese. Japanese marks locatives by a postposed particle -ni, whether containment, support, or simple location is intended. Containment/support

[1] Example: "He was in outside."

is distinguished by saying cup-inside-ni (in the cup) or table-top-ni (on the table), and we say point-here-ni (the point is here), marking it with -ni as well. This is decently strong evidence, it seems, for interference.

What of the cases in which prepositions were obligatory? It seems that whenever some preposition other than in or on was required, in substituted (at appears occasionally). In 12 instances, in invaded the rightful obligatory context of on. The misuses of in are listed in Table 4. Other than on, in has taken the place of at, out, off and around. Could this be the result of interference? Perhaps, but also playing an important role might be the limited lexicon of a child wanting to express more than her linguistic capacities permit.

The Possessive and the Plural

Little can be said here simply because I have not yet in detail looked at the plural noun inflection, but of the data available, there is one thing to notice: that performance is poor on plurals despite the fact that plurals and possessives are homophonous. We cannot attribute any of our results to phonological difficulties, and furthermore, they are both noun inflections. In the English-speaking child (L1), the plural seems to appear before the possessive (Brown, 1973, deVilliers and deVilliers, 1973). Then why is this reversed in Uguisu? Perhaps because the notion of plurality (number) does not exist in the Japanese grammar, whereas possession is expressed by a postposed particle -no, and the word order is the same as in English.

Overgeneralization of the possessive 's to pronouns is quite frequent. Examples include you's, she's, he's, and that's. In Japanese, pronouns are inflected for possession, but English L1 children also have overgeneralizations (ie. mines, hims; Brown, 1973, p. 326). This is an ambiguous case between overgeneralization and interference.

I0306 All children in it this. (?)
R4409 Just seaweed in it this. (around)
R4410 seaweed in here. (around)
N2301 What do you want, put in a salad? (on)
R2709 I saw in a window. (from)
R3315 Put it in here. (bandaid on finger)
S3403 Is she in a floor? (on)
S3404 Is she in a chaid? (on)
S3407 (Then) she...in...ina...in that door? (behind)
U2403 You can eat in here. (on table)
U2404 You can eat in here. (on table)
U2909 In this car I just bumped. (instrumental)
U3304 We was waiting in your door. (at)
U3305 She's waiting in your door. (at)
U3309 The policelady was jumping off in a train. (of, from)
U3312 I just jump off in a train. (of, from)
U3404 I'm in here. (out)
U3708 She was waiting...in your door. (at)
U5007 She's in a moon. (on)
U5008 She didn't in a moon. (on)
V1009 She's (in) waiting in your door. (at)
V1711 Make believe (there's) some door in it, okay? (?)
V2516 In here. (on)
V3402 I gonna put it in there. (on)
W2117 Can I sit down in your bed? (on)
W3017 We gonna color it in floor. (on)
X1602 In out. (?)
D'27-- Try in night. (at)
D'27-- Try in night. (at)
D'44-- You tell what I said in...in a board. (on)

Table 4

Misuses of the Preposition in When Other Prepositions Were Obligatory.

Articles: a and the

Articles express the semantic notions of definite/non-definite, and no such exist in Japanese. Obviously, when a Japanese wants to express definiteness we can resort to "this" or "that", but there is no device which consistently expresses the distinction for every noun. This may account for its low status in the acquisition order.

The Third Person

Since these grammatical morphemes all occur with third person singular subjects, it is expected that number should once again come to play a role. Looking at the data for the third person irregular from sample 8 on, at which point it becomes rather frequent, out of the 47 instances in which has was supplied, .81 (n=38) had either the subject pronoun she or he. Then could it not be the case that she has and he has were both learnt as routines, or at least that this consistency has made it easier for Uguisu to acquire? After all, only one verb is concerned, as opposed to the regular form, which invloves all other indicative verbs. The latter, as can be seen in Table 2, is hovering at about 50%. The crucial evidence may hinge on how long it takes Uguisu to attain criterion in the regular form, which seems to come relatively soon after the irregular form in L1.

Some Hypotheses about the Determinants of the Order of Acquisition

We have taken a quick tour of the morphemes involved, and now, what can be said about the determinants behind this order of acquisition? We have several candidates, non-mutually exclusive. First is the presence/nonpresence of that semantic notion expressed in our morphemes in the Japanese grammar. We have seen that number and definite/nondefinite are both not expressed in Japanese. Table 5 lists all the morphemes dealt with, along with the semantic

MORPHEME	SEMANTIC NOTION	PRESENT/ (+) NOT PRESENT (-) IN JAPANESE
-ing	temporary duration	+
copula (w/o number)	earlierness	+
auxiliary (w/o number)	temp. dur., earlierness	+ +
in	containment (location)	+
on	support (location)	+
to	direction	+
aux past	earlierness	+
regular past	earlierness	+
irregular past	earlierness	+
possessive	possession	+
3rd person regular	number, earlierness	- +
plural	number	-
articles	definite/nondefinite	-

(Based on Brown, 1973) Table 5
Presence/Nonpresence of Semantic Notions Expressed in the Grammatical Morphemes in Japanese.

ing < 3rd p reg	+	to < 3rd p reg	+
ing < plural	+	to < plural	+
ing < articles	+	to < articles	+
cop < 3rd p reg	+	aux past < 3rd p reg	+
cop < plural	+	aux past < plural	+
cop < articles	+	aux past < articles	+
aux < 3rd p reg	+	reg past < 3rd p reg	-
aux < plural	+	reg past < plural	-
aux < articles	+	reg past < articles	-
in < 3rd p reg	+	irreg past < 3rd p reg	+
in < plural	+	irreg past < plural	+
in < articles	+	irreg past < articles	+
on < 3rd p reg	+	poss < 3rd p reg	+
on < plural	+	poss < plural	+
on < articles	+	poss < articles	+

\+ = prediction confirmed
\- = prediction disconfirmed

result: 27 confirmed
3 disconfirmed

Table 6

Predictions for Acquisition Order Based on Semantic Presence/Non-presence in Japanese.

NOTATION: X < Y means that X will be acquired before Y, the justification being that the semantic notion expressed in morpheme X is also expressed in Japanese, whereas the semantic notion expressed in morpheme Y is not expressed in Japanese.

notions described by Brown (1973, p. 369) plus one of my own (to: direction), and indications of whether that notion(s) is expressed in Japanese or not. As seen earlier, the copula and the auxiliary come without number agreement, and therefore "number" has been deleted.

We can make predictions based on the assumption that a morpheme containing a new semantic notion (ie. number, definite/nondefinite) will be acquired later than a morpheme expressing an already-existent notion. Thus the predictions in Table 6, with indications of confirmed/disconfirmed. As it turns out, only 3 predictions are disconfirmed, yet this cannot be the only explanation.[1]

Our second candidate for determinant is what Lee Williams (personal communication) has coined the simplicity principle. This is similar to one of Slobin's (1973) principles, "Avoid exceptions" and, in a more general sense, what I concluded as a principle "Use whatever you can, but try to make it orderly" in a detailed analysis of samples 1-3 (Hakuta, 1973). What evidence is there that such a principle exists? As noted earlier in the section on the past tense, the highly regular form of the past auxiliary was acquired quite early, especially relative to the irregular form as well as the infrequent regular form. The simplicity principle can also account quite nicely for the early "acquisition" of the copula and auxiliary, since if number agreement is left out, it works out to a simple system which can be described by the following context-sensitive rules:

be--- am/ I____
are/ you, we, they, these____
is/ he, she, it, this, that, NP____

or, more concisely, the strategy: IF IT'S NOT I, YOU, WE, THEY, OR THESE, USE IS. Finally, this principle can also account for the the relatively early emergence of the third person irregular. And outside of these grammatical morphemes, and this occurs in L1 English as well, there is a strong tendency to pick up

[1] Merrill Swain has rightfully pointed out to me at the conference that one could very well argue the reverse: that is, the child will pay more attention to those morphemes which express notions not present in his/her L1.

regular patterns and use them with a great deal of frequency. (eg. hafta).

The third candidate for determinants is phonological interference, and the one evidence to date (mostly due to my ignorance in phonology) is the past regular which, as mentioned earlier, would provide certain difficulties to a native Japanese speaker.

CONCLUDING REMARKS

We have looked at the development of grammatical morphemes and tried to hypothesize some determinants of acquisition order. Three possibilities have been discussed: (1) semantic differences between L1 and L2, (2) the simplicity principle, and (3) phonological differences.

In looking at the data, we must strongly bear in mind that not only are grammatical morphemes one of the many observable aspects of language, it is only one child that has been observed. It would be fruitful to see what the order is in other children as well as adults learning a second language, particularly in those coming from native languages which contain the notions of number and definite/non-definiteness. More pointedly, is the acquisition order we have seen the result of simply an older child learning a language, or is it the result of the influences of the native language, or is it the result of the interaction of both? The answer would lie in looking at other children as well as the countless other aspects of Uguisu's golden words.

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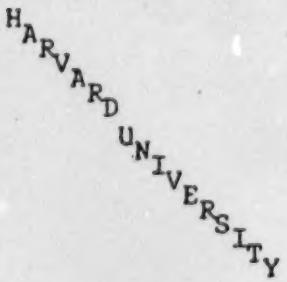
APPENDIX A

Directions for Scoring Fourteen English Morphemes Obligatory in Some Contexts



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Scoring of Morphemes.

General Rule: Scores.

1. Code through for just one morpheme at a time. Not possible to pay attentionmore than one.

2. Write down doubtful cases or especially interesting cases due to overgeneralization or whatever.

I. Progressive -ing only.

1. Present -ing only scored on main finite verb. Not as gerunds or as verb complements. Not as catenatives gonna, tryna, etc.

2. Clearly obligatory contexts include marginal notes on situation; questions like "What are you doing?"; expansions by parent using -ing; child's intent to imitate an utterance with -ing.

3. Presence of be allomorph as seeming auxiliary (rare) not counted as obligatory context. Evidence suggests that these are colloquial gonna I'm na go now.

4. Hardest cases where nothing in context excludes likelihood that action is in progress and of brief duration. If -ing present score as P; if absent as A. If very doubtful, omit from scoring.

5. Score familiar progressive routines like "What you doing?" or "Making pennies."

6. Do not score morphemes marked for dubious transcription by ( ) or [( )] unless strongly supported by other evidence.

II, III. in,on. Scoring pretty simple. Can tell from head noun of prep. phrase ordinarily. Do not score particles belonging to separable verb as take it off or particles that do not take head noun even when not part of separable verb "What's going on there."

IV. Plurals. Count just regular inflections on the noun. All irregulars (they are few) omitted. All regular allomorphs counted together. Other aspects of plurality (e.g., pronouns) not counted. Plural determiners like some, many treated as obligatory contexts. Singular determiners like a, one, another require singular. Normally plural forms like downstairs and socks included as obligatory plurals. Also any obvious nursery routines.

V. Uncontracted Copula. Enclosed scoring sheet lists contractible environments. All allomorphs of be together. Be sure not to confuse with be auxiliaries. Past tense forms and be infinitive included. Note, may leave uncontracted where possible to contract (What is this?). Does not count here but among contractible copulas. Do not score as omitted initial copulas in Yes-No questions where acceptable in colloquial English (e.g., This one?).

VI. Past irregulars. Omit got; same as have. Omit past participles that are different from simple past (seen, broken). Of course all regular -ed pasts not counted here. Obligatory contexts include adverbs like yesterday, marginal notations, expansions, continuity of tense, etc. Omit verbs like put and cut where present and past same. Would, could, should counted as irregular past as in some grammatical treatments.

VII. Articles. Score only for a and the. Do not attempt to distinguish. Do not score another at all. Include any occurrencies of an with others. Do not attempt to distinguish the many types of semantic obligation; it cannot consistently be done.

VIII. 3rd Person Irregular. Mostly does and has. Score a context as obligatory only if third person subject plus some other indication that present called for. Third person subject alone not enough as could be omitted modal, etc. Regular inflection -s separately scored.

IX. Possessive -s. Score all morphemes together. Mark "D" possessors without possession as in That Mommy in context calling for That Mommy's. Only N + N possessives, not pronouns.

X. 3rd Person Regular. Like VIII, except count -s allomorphs.

XI. Past regular. All allomorphs of -d counted together. Otherwise nothing special except omit predicate adjectives.

XII. See data sheet for uncontractible contexts. Include past tenses.

XIII. Contracted Copula. See data sheet for contexts. Count even if uncontracted.

XIV. See data sheet for contexts. Only count main verb, not complements. Omitted initial auxiliaries on Yes-No questions not obligatory.

Additional notes on morpheme scoring

1. Progressive: Don't score past progressives e.g. "he was going". These are rare in child speech and the contexts are ambiguous.

2,3. in, on: Also occur in regular routines concerning time e.g. "in a minute" Score if present, though hard to tell absence. Probably routines learned as whole. Don't score if in optional context e.g. "We're going (on) Saturday". Fortunately again rare.

4. Plurals: Sometimes clearly obligatory from non-linguistic context e.g. "Look! Horses!" as herd of horses in sight. Only count if clear notes on context in such cases. Don't score, but note, overgeneralisations such as "foots" - these are strictly not obligatory contexts for the regular plural inflection. And irregulars are omitted.

5. Uncontracted copula : Don't score futures e.g. will be, as these are rare and it is also difficult to define or identify contexts which are not supplied. Note 3 main stumbling blocks mentioned in notes:
   1. DON'T confuse with auxiliary verb be
   2. If a morpheme is uncontracted but contractible e.g. "Who is that?" score as CONTRACTIBLE.
   3. Morpheme considered optional in initial position of yes/no question e.g. "That your pen?" - DON'T score as missing uncontractible copula.

   Also score as present in an elliptical construction such as "here it is" the UNCONTRACTIBLE copula.(Couldn't be "Here it's")

6. Past irregular: Only count on MAIN VERB not auxiliaries such as "He didn't go".

7. Articles: Remember often optional in single naming by child e.g. "What's that?" "Teddy".

8. 3rd person irregular: probably most difficult, but also very rare. Child tends to use alternate form for habitual action e.g. "the doll can do.." instead of does . Don't get trapped by auxiliaries: count only main verbs does and has.

9. Possessives: word order plus context best clues.

10. 3rd regular: same comments as for 8.There are bound to be situations in which the options are: present progressive and auxiliary missing
    3rd regular ending missing
    past regular missing.

    If context doesn't help, abandon it! Some linguistic cues to distinguish the first and second alternatives are e.g. "Always" or "every day".

11. Past regular: see 6. above. Don't count overgeneralisations e.g. "he falled"- not obligatory for past regular. Since child is marking past, don't count for"irregular absent"either.Don't score them at all.

12 &14: auxiliaries: don't count futures e.g. will. See 5.

13 Contracted copula: see 5.